

in N. 49° 28', W. 24° 42', barometer 28.6 (726.4), wind ssw., force 7.

On the 28th the disturbance was at some distance off the northwest coast of Ireland, the pressure having increased to 29.2 (741.7).

XII.—This disturbance appeared south of Newfoundland on the 29th, and was probably identical with a slight depression which passed to the eastward over the Gulf of Saint Lawrence on the 28th. The s. s. "Neckar," R. Bussius commanding, reported, in N. 44° 03', W. 52° 08', barometer 29.39 (746.5), wind w. to se., force 3 to 7; the s. s. "Waesland," H. Nickels commanding, reported, in N. 45° 55', W. 49° 34', barometer 29.58 (751.3), wind se., force 6, raining. Captain Sadler, of the s. s. "State of Indiana," in N. 44° 27', W. 56° 58', reported barometer 29.6 (751.8), wind u., force 7.

Vessels in N. 49°, W. 52° and 54°, reported strong e. and se. gales. On the 30th the region of least pressure was transferred to about N. 50°, W. 40°, where the barometer ranged from 29.7 (754.4) to 29.84 (757.9), with moderate to strong s. winds to the eastward, and moderate n. and nw. winds in the rear of the depression.

XIII.—This depression appears to have occupied the region between Madeira and the Western Islands from the 27th to the 30th. Owing to the small number of reports received from that region, its origin and subsequent track cannot, as yet, be defined. The following reports, however, are given as showing the existence of the disturbance: s. s. "Weser," H. Bruns commanding, in N. 30° 00', W. 34° 45', on the 27th, barometer 30.03 (762.7), being a fall of .15 inch since last observation, wind shifting from sse., force 3, to nw., force 5, squally. S. s. "Burswell," J. Wallace commanding, in N. 35° 59', W. 18° 25', on the 28th, barometer 29.79 (756.7), a fall of .3 inch, wind sw., force 4, stormy weather; 29th, in N. 35° 42', W. 21° 50', barometer 29.61 (751.8), wind s., force 4, very stormy; 30th, in N. 35° 16', W. 25° 36', barometer 29.7 (754.4), wind ese., force 3, squally. The s. s. "Ohio," G. Meyer commanding, on the 29th, in N. 39° 06', W. 18° 15', reported barometer 29.84 (757.9), wind sse., force 7; 30th, in N. 37° 14', W. 22° 49', barometer 29.89 (759.2), wind se., force 4. Both the "Burswell" and "Ohio" had heavy rain during the 29th and 30th.

TEMPERATURE OF THE AIR.

[Expressed in degrees, Fahrenheit.]

In the first column of the following table are shown the normal temperatures of November in the several districts, as determined from the Signal Service records; the second column shows the mean temperature of November, 1883, and the third column shows the departures of November, 1883, from the normal:

Average Temperatures for November, 1883.

Districts.	Average for November. Signal-Service observations.		Comparison of Nov., 1883, with the average for several years.
	For several years.	For 1883.	
New England.....	39.9	42.7	2.8 above.
Middle Atlantic states.....	45.3	48.0	2.7 above.
South Atlantic states.....	54.9	56.9	2.0 above.
Florida peninsula.....	66.8	68.0	1.2 above.
Eastern Gulf.....	55.6	55.2	2.6 above.
Western Gulf.....	59.1	60.2	4.1 above.
Rio Grande valley.....	68.0	68.8	3.8 above.
Tennessee.....	48.7	52.2	3.5 above.
Ohio valley.....	43.0	47.0	4.3 above.
Lower lakes.....	37.4	41.0	4.2 above.
Upper lakes.....	33.5	35.8	2.3 above.
Extreme northwest.....	23.8	24.0	0.2 above.
Upper Mississippi valley.....	38.0	41.8	3.8 above.
Missouri valley.....	34.8	37.1	2.3 above.
Northern plateau.....	29.6	32.6	3.0 above.
Middle slope.....	37.1	44.7	7.6 above.
Southern slope.....	51.8	54.0	2.2 above.
Northern plateau.....	42.7	42.7	7.3 above.
Southern plateau.....	35.4	47.9	1.4 above.
North Pacific.....	46.5	45.9	2.3 above.
Middle Pacific.....	43.6	51.5	2.3 below.
South Pacific.....	53.8	58.9	1.1 above.
Mount Washington, N. H.....	57.8	19.5	3.0 above.
Pike's Peak, Colo.....	16.5	10.3	3.5 above.
Salt Lake City, Utah.....	10.3	39.0	1.6 above.

The distribution of mean temperature over the United States and Canada for the month of November, 1883, is exhibited on chart iii. by the dotted isothermal lines.

The general distribution of mean temperature, with the districts of maximum departures from the normal, for the month of November in each year, from 1873 to 1882, inclusive, are as follows:

Districts.	Maximum departures.	Year.	Remarks.
New England.....	— 7.0	1873...	Normal in the Gulf states and in the lower Missouri and lower Mississippi valleys; below the normal in all other districts east of the Rocky mountains.
Minnesota.....	— 5.5		
Lower lakes.....	— 4.5		
Middle Atlantic states.....	— 4.0		
Gulf states.....	+ 4.8	1874...	Normal in New England and in the lower Missouri valley; below the normal on the Pacific coast, in Minnesota, and in the Saint Lawrence valley; above the normal in the lake region, the upper Mississippi and Ohio valleys, and in the middle and south Atlantic states.
Ohio valley and Tennessee.....	+ 3.9		
South Atlantic states.....	+ 1.8		
Minnesota.....	— 2.3		
Saint Lawrence valley.....	— 1.3		
Pacific coast.....	— 0.7	1875...	Above the normal on the Pacific coast, in the Ohio valley, south Atlantic, and east Gulf states; below the normal over the northern districts from the Missouri valley to New England.
Gulf states.....	+ 5.7		
Ohio valley and Tennessee.....	+ 2.6		
Saint Lawrence valley.....	+ 6.0		
Minnesota.....	— 5.3		
New England.....	— 5.2	1876...	Normal in the upper Mississippi valley; above the normal on the Pacific coast, in the lake region, Saint Lawrence and Ohio valleys, New England and the middle Atlantic states; below the normal in the Missouri valley and in the south Atlantic and Gulf states.
Lower lakes.....	+ 3.1		
Saint Lawrence valley.....	+ 2.5		
Upper lakes.....	+ 2.3		
Middle Atlantic states.....	+ 2.3		
Missouri valley.....	— 4.5	1877...	Above the normal on the Pacific coast and in all districts east of the Rocky mountains, except in the Gulf states.
Minnesota.....	— 2.8		
Minnesota.....	+ 6.3		
New England.....	+ 6.1		
Lower lakes.....	+ 5.1		
Middle Atlantic states.....	+ 5.1	1878...	Normal on the Pacific coast; above the normal in all districts east of the Rocky mountains, the departures in the south Atlantic and Gulf states being less than 1°.
Gulf states.....	— 2.3		
Upper Missouri valley.....	+ 13.7		
Minnesota.....	+ 12.4		
Upper Mississippi valley.....	+ 7.8		
Missouri valley.....	+ 7.0	1879...	Below the normal west of the Rocky mountains and in the Canadian Maritime Provinces; above the normal in all other districts.
Upper lakes.....	+ 6.0		
Western Gulf.....	+ 5.1		
Ohio valley and Tennessee.....	+ 4.6		
Eastern Gulf.....	+ 3.8		
Boise City, Idaho.....	— 4.8	1880...	Below the normal over the entire country, the departures being least in the Atlantic coast districts.
Salt Lake City, Utah.....	— 3.2		
Canadian Maritime stations.....	— 2.3		
Rio Grande valley.....	— 12.4		
Middle slope.....	— 12.2	1881...	Normal in the west Gulf states; below the normal west of the Rocky mountains, in the northern and middle slopes, Rio Grande valley, and Minnesota; above the normal in the Missouri valley and in all districts east of the Mississippi river.
Southern slope.....	— 11.2		
Northern plateau.....	— 8.1		
Upper Mississippi valley.....	— 7.5		
Florida peninsula.....	+ 5.6		
South Atlantic states.....	+ 3.2	1882...	Below the normal on the Atlantic and Pacific coasts and in the northern and middle plateau districts; above the normal in all other parts of the country.
Ohio valley.....	+ 3.2		
Salt Lake City, Utah.....	— 4.5		
Middle Pacific coast.....	— 2.4		
Upper Mississippi valley.....	+ 4.6		
Upper lakes.....	+ 4.3	1882...	
Extreme northwest.....	+ 4.1		
Northern plateau.....	— 4.4		
Middle Pacific coast.....	— 2.3	1882...	

The mean temperature of November, 1883, has been above the normal of the corresponding month in all parts of the United States, except in the middle Pacific coast region, where it averaged 2° 3 below the normal. The most marked departures occurred in the middle slope and northern plateau, where they amounted to 7° 6 and 7° 3, respectively. In the western Gulf states, Ohio valley, and lower lake region, the departures varied from 4° 1 in the first named district to 4° 3 in the Ohio valley. In the extreme northwest the mean temperature was nearly normal, the departure being but 0° 2 above, and in the Florida peninsula it averaged 1° 2 above. In the other districts east of the Rocky mountains the departures above the normal temperature varied from 2° to 3° 8. In the northern and southern Pacific coast regions and in the middle and southern plateau districts the departures ranged from 1° 1 to 2° 3. On the summits of Mount Washington, New Hampshire, and Pike's Peak, Colorado, the mean temperatures were 3° 0 and 3° 5 above the normal, respectively. At Salt Lake City, Utah, the

mean temperature averaged 1°·6 above the normal of the last nine years.

The following are some of the highest and lowest monthly mean temperatures reported from the Signal Service stations:

Stations reporting highest.	Stations reporting lowest.
Key West, Florida..... 75.0	Pike's Peak, Colorado..... 13.8
Brownsville, Texas..... 69.2	Saint Vincent, Minnesota..... 18.6
Rio Grande City, Texas..... 68.3	Mount Washington, New Hampshire..... 19.5
Sanford, Florida..... 67.3	Poplar River, Montana..... 20.6
Indianola, Texas..... 66.3	Fort Buford, Dakota..... 22.4
Cedar Keys, Florida..... 65.8	Moorhead, Minnesota..... 23.2
Galveston, Texas..... 65.0	Fort Assiniboine, Montana..... 26.1
New Orleans, Louisiana..... 63.5	Bismarck, Dakota..... 26.1
Jacksonville, Florida..... 63.3	Fort Maginnis, Montana..... 29.2
Pensacola, Florida..... 61.5	Duluth, Minnesota..... 29.7
Mobile, Alabama..... 60.5	Fort Shaw, Montana..... 30.0

DEVIATIONS FROM MEAN TEMPERATURE.

The departures exhibited by the reports from the regular Signal Service stations are shown in the table of average temperatures for November, 1883. Voluntary observers report the following notes in connection with this subject:

Arkansas.—Lead Hill, Boone county: mean temperature, 50°·0, is 3°·2 above the November average of the last two years.

Illinois.—Riley, McHenry county: mean temperature, 35°·5,

is 2°·4 above the November average of the last twenty-three years. The mean temperature of the autumn of 1883 is 0°·6 below the average of the last twenty autumns.

Anna, Union county: mean temperature, 49°·3, is 3° above the November average of the last eight years.

Mattoon, Coles county: mean temperature, 44°·8, is about 6° above the November average of the past four years.

Indiana.—Wabash, Wabash county: mean temperature, 43°·6, is 3°·8 above the November average of the last eight years.

Logansport, Cass county: mean temperature, 42°·3, is 2°·2 above the November average of the last twenty-four years. The highest November mean temperature since 1859 (48°·0) occurred in 1862; the lowest (30°·3) occurred in 1880.

Kansas.—Independence, Montgomery county: mean temperature, 46°·3, is 2°·8 above the November average of the last twelve years.

Wellington, Sumner county: mean temperature, 42°·6, is 3°·8 above the November average of the four preceding years.

Lawrence, Douglas county: mean temperature, 42°·8, is 3°·6 above the November average of the last sixteen years.

Maine.—Gardiner, Kennebec county: mean temperature, 38°·4, is 2°·3 above the November average of the last forty-seven years.

Table of Comparative Minimum Temperatures for the Month of November.

State or Territory.	Minimum for November, 1883, Signal Service.	Minimum since Signal-Service stations were opened—3 to 12 years.	Lowest from any other source.
	Station. Temp.	Station. Temp. Year.	Place. Temp. Year. Length of Record.
Alabama.....	Montgomery..... 29	Montgomery..... 24.6	Huntsville..... 13
Arizona.....	Fort Apache..... 16	Prescott..... 1	Whipple Barracks..... 1
Arkansas.....	Fort Smith..... 25	Little Rock..... 10	Fort Smith..... 6
California.....	Sacramento..... 29	Campo..... 16	Fort Bidwell..... 9
Colorado.....	Pike's Peak..... -13	Pike's Peak..... -38	Fort Garland..... -35
Do.....	West Las Animas..... 8	Denver..... -18	Pagosa Springs..... -38
Connecticut.....	New Haven..... 18	New Haven..... 2	New Haven..... 2
Dakota.....	Fort Buford..... -19	Pembina..... -40	Fort Buford..... -37
Delaware.....	Delaware Breakwater..... 25	Delaware Breakwater..... 23	Fort Delaware..... 32
District of Columbia.....	Washington..... 21	Washington..... 12.5	Washington..... 12
Florida.....	Pensacola..... 36	Saint Marks..... 27	Fort Barrancas..... 19
Georgia.....	Atlanta..... 20	Atlanta..... 20	Atlanta..... 10
Idaho.....	Coeur d'Alene..... 14	Eagle Rock..... -14	Fort Hall..... -12
Illinois.....	Chicago..... 10	Chicago..... 3	Augusta..... -12
Do.....	Indianapolis..... 10	Indianapolis..... 5	Rock Island Arsenal..... 7
Indiana.....	Indianapolis..... 10	Indianapolis..... 5	Spiceland..... -14
Indian Territory.....	Fort Gibson..... 10	Fort Gibson..... 10	Fort Gibson..... 0
Iowa.....	Des Moines..... 6	Dubuque..... 9	Independence..... -17
Kansas.....	Leavenworth..... 16	Dodge City..... 7	Fort Leavenworth..... -14
Kentucky.....	Louisville..... 16	Louisville..... 8	Newport Barracks..... 4
Louisiana.....	New Orleans..... 37	Shreveport..... 18	Fort Jesup..... 17
Maine.....	Eastport..... 12	Eastport..... -13	Orono..... -16
Do.....	Portland..... 17	Portland..... 6	Brunswick..... 3
Maryland.....	Ocean City..... 22	Baltimore..... 15	Emmitsburg..... 7
Massachusetts.....	Boston..... 14	Boston..... 2	Williamstown..... 3
Do.....	Provincetown..... 23	Springfield..... -0.5	Florida..... -14
Michigan.....	Escanaba..... -1.5	Escanaba and Marquette..... -9	Fort Brady..... -17
Do.....	Marquette..... 1		
Minnesota.....	Saint Vincent..... -22	Duluth..... -29	Fort Ripley..... -30
Do.....	Moorhead..... -14		
Mississippi.....	Vicksburg..... 28	Vicksburg..... 23	Columbus..... 22
Missouri.....	Saint Louis..... 18	Saint Louis..... 8	Allenton..... 5
Montana.....	Fort Assiniboine..... -23	Fort Benton..... -31	Camp Baker..... -42
Nebraska.....	Omaha..... 7	North Platte..... -10	Camp Sheridan..... -17
Nevada.....	Winnemucca..... -9	Winnemucca..... -9	Camp Halleck..... -12
New Hampshire.....	Mount Washington..... -17	Mount Washington..... -40	Grafton..... -16
Do.....			Dartmouth College..... -9
New Jersey.....	Barnegat City..... 19	Sandy Hook..... 8	North Germantown..... 6
Do.....		Atlantic City..... 10	Newark..... 8
New Mexico.....		Santa Fe..... -11	Fort Union..... -15
New York.....	Rochester..... 16	Albany..... -10	Canton..... -20
Do.....			Gouverneur..... -17
North Carolina.....	Charlotte..... 20	Charlotte..... 18	Fort Johnson..... 9
Ohio.....	Columbus..... 12	Columbus..... 5	College Hill..... 2
Do.....	Toledo..... 14	Cleveland..... 0	Westerville..... -13
Oregon.....	Roseburg..... 27	Umatilla..... 9	Camp Harney..... 4
Do.....			Fort Dallas..... 4
Pennsylvania.....	Pittsburg..... 15	Pittsburg..... 4	Franklin..... -8
Do.....	Eric..... 19	Eric..... 6	Philadelphia..... 12
Rhode Island.....	Narragansett Pier..... 17	Newport..... 4	Port Adams..... 3
South Carolina.....	Charleston..... 30	Charleston..... 28	Aiken..... 23
Do.....			Charleston..... 28
Tennessee.....	Nashville..... 16	Knoxville..... 15	Clarksville..... 3
Texas.....	Fort Elliott..... 20	Fort Elliott..... -5	Fort Elliott..... 8
Utah.....	Salt Lake City..... 17	Salt Lake City..... 3	Coalville..... -18
Vermont.....		Burlington..... -10	Newport..... -18
Virginia.....	Fort Myer..... 18	Lynchburg..... 13	Snowville..... 9
Do.....	Lynchburg..... 19	Norfolk..... 21	Fort Monroe..... 15
Washington.....	Spokane Falls..... 20	Spokane Falls..... 3	Fort Colville..... 8
West Virginia.....		Morgantown..... 8	Helvetia..... 0
Wisconsin.....	La Crosse..... 3	Milwaukee..... -14	Neillsville..... -26
Do.....		La Crosse..... -21	Fort Crawford..... -13
Wyoming.....	Cheyenne..... 16	Fort Washakie..... -23	Fort Bridger..... -40

Table of Maximum and Minimum Temperatures for November, 1883.

State or Territory.	Signal Service.	Signal Service.		U. S. Army Post Surgeons, or Voluntary Observers.	U. S. Army Post Surgeons, or Voluntary Observers.	
		Station.	Max. Min.		Station.	Max. Min.
Alabama	Montgomery	80	29	Mt. Vernon Barks.	84	27
Do	Mobile	80	33	Green Springs	80	24
Arizona	Maricopa	85	31	Maricopa	93	34
Do	Fort Apache	72	16	Willcox	81	24
Arkansas	Fort Smith	79	25	Lead Hill	83	15
Do	Little Rock	78	26	Mount Ida	76	20
California	Los Angeles	84	42	Borden	100	30
Do	Sacramento	71	29	Summit	42	8
Colorado	West Las Animas	77	8	Fort Lyon	76	7
Do	Pike's Peak	51	-13	Fort Lewis	59	12
Connecticut	New Haven	63	18	Southampton	65	12
Dakota	Fort Sully	70	3	Fort Meade	71	7
Do	Fort Buford	58	-19	Fort Pembina	57	-23
Delaware	Del. Breakwater	70	25	Rock Creek Bridge	76	19
District of Columbia	Washington	72	21	Lima	96	48
Florida	Key West	86	67	Newport	79	30
Do	Pensacola	80	36	Forsyth	84	28
Georgia	Augusta	82	28	Camp Mitchell	78	13
Do	Atlanta	76	20	Camp Lapwai	63	22
Idaho	Genoa/Alene	59	14	Bunker Hill	75	6
Illinois	Chicago	74	15	Polo	57	0
Do	Chicago	62	10	Marquette/Vevay	76	12
Indiana	Indianapolis	65	10	Lafayette	64	4
Do	Indianapolis	65	10	Logan	70	8
Iowa	Keokuk	68	12	Cresco	60	-3
Do	Des Moines	67	6	Fort Scott	76	15
Kansas	Leavenworth	73	16	Holt	75	7
Do	Leavenworth	73	16	Bowling Green	72	9
Kentucky	Louisville	75	16	Frankford	73	13
Do	Louisville	75	16	Grand Coteau	83	32
Louisiana	New Orleans	81	37	Fort Preble	63	18
Maine	Portland	62	17	Orono	58	9
Do	Eastport	58	12	Sandy Springs	73	14
Maryland	Baltimore	71	23	Emmitsburg	70	12
Do	Ocean City	62	22	Westborough	74	16
Massachusetts	Boston	69	14	Heath	68	8
Do	Provincetown	62	23	Thorntonville	65	6
Michigan	Detroit	67	14	Tonia	62	5
Do	Escanaba	55	-1.5	Northfield	60	0
Minnesota	Saint Paul	60	0	Minneapolis	59	-2
Do	Saint Vincent	57	-22	Sedalia	78	9
Mississippi	Vicksburg	82	28	Centerville	70	5
Missouri	Saint Louis	72	18	Fort Assiniboine	65	-20
Do	Saint Louis	72	18	Fort Ellis	61	-27
Montana	Fort Assiniboine	62	-23	Red Willow	70	10
Do	Fort Shaw	61	-22	Fremont	66	3
Nebraska	North Platte	67	12	Goldsboro	75	15
Do	Omaha	65	7	Tecoma	52	-9
Nevada	Omaha	65	7	Contoocookville	72	15
Do	Omaha	65	7	New Market	70	12
New Hampshire	Mount Washington	46	-17	Vineyard	77	16
Do	Mount Washington	46	-17	Summersville	62	16
New Jersey	Sandy Hook	67	22	Fort Union	71	5
Do	Barneget City	63	19	Fort Wingate	64	15
New Mexico	Barneget City	63	19	Johnstown	70	0
Do	Barneget City	63	19	Fort Hamilton	76	21
New York	Oswego	70	20	Chapel Hill	83	17
Do	Rochester	69	16	Highland	65	9
North Carolina	Wash. Woods	83	30	Portsmouth	77	14
Do	Charlotte	78	20	Wauseon	66	6
Ohio	Cincinnati	74	19	Albany	61	36
Do	Columbus	72	12	Bola	58	32
Oregon	Portland	60	34	Fallington	74	18
Do	Roseburg	59	27	Granpian Hill	64	4
Pennsylvania	Pittsburg	73	15	Aiken	80	24
Do	Philadelphia	73	25	Dyersburg	78	17
Rhode Island	Block Island	82	24	Grand View	69	10
Do	Narragansett Pier	80	17	Austin	86	39
South Carolina	Charleston	77	20	Cleburne	84	23
Tennessee	Memphis	77	20	Nephi	66	5
Do	Nashville	75	16	Promontory	52	0
Texas	Rio Grande City	93	44	Charlotte	72	10
Do	Fort Elliott	77	20	Dorset	71	6
Utah	Salt Lake City	64	17	Johnstown	79	25
Do	Salt Lake City	64	17	Marion	72	10
Vermont	Salt Lake City	64	17	Fort Spokane	60	16
Do	Salt Lake City	64	17	Bainbridge Island	60	24
Virginia	Cape Henry	81	26	Helvetia	70	10
Do	Fort Myer	72	18	Nellisville	59	0
Washington	Olympia	57	29	Rhon	63	0
Do	Spokane Falls	58	20	Fort Bridger	56	2
West Virginia	Spokane Falls	58	20			
Wisconsin	Milwaukee	60	5			
Do	La Crosse	59	3			
Wyoming	Cheyenne	66	16			

Maryland.—Fallston, Harford county: mean temperature, 44° 8, is 2° 8 above the November average of the last thirteen years.

Missouri.—Saint Louis: mean temperature, 46° 7, is 3° 8 above the November average of the last forty-eight years; it is 3° 3 below the mean of the warmest November, and 14° 6 above the coolest November of that period.

New Hampshire.—Contoocookville, Merrimack county: mean temperature, 39° 9, is 6° 5 above the November average of the last twelve years, and is the highest November mean of that

period, with the exception of November, 1877, which was about 1° higher.

New York.—Palermo, Oswego county: mean temperature, 36° 4, is 0° 9 above the November average of the last thirty years.

North Volney, Oswego county: mean temperature, 38° 6, is 3° 3 above the average of the last sixteen years. The mean temperature of the autumn of 1883 (47° 5), is 0° 8 below the autumnal average of the last sixteen years. The warmest autumn of that period was that of 1881, mean 52° 5; the coldest was that of 1875, mean 44° 0.

Ohio.—Wauseon, Fulton county: mean temperature, 40° 3, is 5° 4 above the November average of the last thirteen years, and is the highest November mean of that period; the lowest November mean, 27° 9, occurred in 1880. The extremes for November, 1883, are: maximum, 66°; minimum, 6°. The November extremes for the last thirteen years are: maximum, 74° 6, in 1872; minimum, -8° 5, in 1880.

Pennsylvania.—Dyberry, Wayne county: mean temperature, 37° 9, is 3° 6 above the November average of the last sixteen years. The highest November mean of that period, 38° 2, occurred in 1881; the lowest, 26° 4, occurred in 1873.

Texas.—New Ulm, Austin county: mean temperature, 61° 6, is 2° 5 above the November average of the last twelve years. The highest November mean of that period, 65° 6, occurred in 1879; the lowest, 49° 6, occurred in 1880. The extremes for the same period are: maximum, 94° in 1882; minimum, 16° in 1872.

Virginia.—Variety Mills, Nelson county: mean temperature, 45° 7, is 1° 3 above the November average of six years. The mean temperature of the autumn of 1883 (September 1st to November 30th) is 53° 2, or 1° 6 below the autumnal average of the last six years.

Wytheville, Wythe county: mean temperature, 44° 6, is 2° 9 above the November normal.

West Virginia.—Helvetia, Randolph county: mean temperature, 45° 0, is 4° 8 above the November average of seven years.

Wisconsin.—Manitowoc, Manitowoc county: mean temperature, 36° 6, is 0° 9 above the November average of a period of thirty-two years, during which the highest November mean, 41° 1, occurred in 1865, and the lowest, 27° 8, occurred in 1880.

MONTHLY RANGES OF TEMPERATURE.

The monthly ranges of temperature have been greatest in Montana, where, at Forts Shaw, Benton, and Assiniboine, they were 81°, 83°, and 85°, respectively. They have been least along the coasts of the Atlantic and Pacific oceans and Gulf of Mexico, the smallest ranges being 18° at Key West, Florida; 23° at Fort Canby, Washington Territory, and 24° at San Francisco, California. Monthly ranges of 60° or more occurred at the following stations: Columbus, Ohio, and Saint Paul, Minnesota, 60°; Des Moines, Iowa, 61°; Duluth, Minnesota, 62°; Mount Washington, New Hampshire, 63°; Yankton, Dakota, 64°; Forts Bennett and Sully, and Huron, Dakota, 67°; Moorhead, Minnesota, and West Las Animas, Colorado, 69°; Helena, Montana, 74°; Fort Maginnis, Montana, 76°; Fort Buford, Dakota, 78°; Fort Shaw, Montana, 81°; Fort Benton, Montana, 83°; Fort Assiniboine, Montana, 85°. Monthly ranges of 40° or less were reported as follows: Indianola, Texas, 40°; Provincetown, Massachusetts, and San Diego, California, 39°; Lewiston, Idaho, Spokane Falls, Washington Territory, and Galveston, Texas, 38°; Sanford, Florida, 32°; Roseburg, Oregon, 31°; Olympia, Washington Territory, 28°; Portland, Oregon, 26°; Fort Stevens, Oregon, 25°; San Francisco, California, 24°; Fort Canby, Washington Territory, 23°; Key West, Florida, 18°.

GREATEST DAILY RANGES OF TEMPERATURE.

The greatest daily ranges of temperature have varied in the several districts as follows:

New England.—From 20° at Portland, Maine, on the 12th, to 31° at Boston, Massachusetts, on the 5th, and 34° on the summit of Mount Washington, New Hampshire, on the 12th.

Middle Atlantic states.—From 20° at Philadelphia, Pennsylvania, on the 12th, to 36° at New York City, New York, on the 13th.

South Atlantic states.—From 24° at Hatteras, North Carolina, and Jacksonville, Florida, on the 8th and 24th, respectively, to 31° at Augusta, Georgia, on the 6th.

Florida peninsula.—From 10° at Key West, on the 10th, to 26° at Cedar Keys, on the 4th.

Eastern Gulf.—From 22° at New Orleans, Louisiana, on the 17th, to 32° at Montgomery, Alabama, on the 13th.

Western Gulf.—From 19° at Indianola, Texas, on the 3d, to 35° at Fort Smith, Arkansas, on the 26th.

Rio Grande valley.—From 24° at Brownsville, Texas, on the 24th, to 26° at Rio Grande City, on the 3d.

Tennessee.—From 28° at Memphis, on the 19th, to 30° at Chattanooga, on the 3d.

Ohio Valley.—From 24° at Cincinnati, Ohio, on the 26th, to 31° at Indianapolis, Indiana, on same date.

Lower lakes.—From 22° at Erie, Pennsylvania, on the 13th, to 32° at Toledo, Ohio, on the 17th.

Upper lakes.—From 24° at Port Huron, Michigan, on the 26th, to 41° at Escanaba, Michigan, on same date.

Extreme northwest.—From 45° at Saint Vincent, Minnesota, on the 25th, to 48° at Fort Buford, Dakota, on the 12th.

Upper Mississippi valley.—From 28° at Keokuk, Iowa, on the 13th, to 39° at Des Moines, Iowa, on the 25th.

Missouri valley.—From 43° at Leavenworth, Kansas, and Omaha, Nebraska, on the 25th, and at Yankton, Dakota, on the 27th, to 53° at Fort Bennett, Dakota, on the 16th.

Northern slope.—From 36° at Cheyenne, Wyoming, on the 12th, to 62° at Fort Shaw, Montana, on the 28th.

Middle slope.—From 22° on the summit of Pike's Peak, Colorado, on the 26th, to 50° at West Las Animas, Colorado, on the 16th and 27th.

Southern slope.—From 41° at Fort Stockton, Texas, on the 24th, to 42° at Fort Cocho, Texas, on the 30th.

Southern plateau.—From 28° at Fort Grant, Arizona, on the 21st, to 46° at Fort Apache, Arizona, on the 30th.

Middle plateau.—25° at Salt Lake City, Utah.

Northern plateau.—From 26° at Spokane Falls, Washington Territory, on the 1st, to 37° at Dayton, Washington Territory, on same date.

North Pacific coast.—From 11° at Fort Canby, Washington Territory, on the 14th, to 22° at Roseburg, Oregon, on the 1st.

Middle Pacific coast.—From 14° at San Francisco, California, on the 29th, to 28° at Sacramento, California, on the 30th.

South Pacific coast.—From 31° at San Diego, California, on the 12th, to 38° at Los Angeles, California, on the 28th.

FROSTS.

Frosts were reported in the various districts on the following dates:

New England.—1st to 31st.

Middle Atlantic states.—1st to 5th, 8th, 12th to 20th, 25th to 30th.

South Atlantic states.—1st to 4th, 13th to 19th, 28th, 29th, 30th.

Eastern Gulf.—1st, 2d, 3d, 13th, 16th, 17th, 28th, 29th, 30th.

Western Gulf.—1st, 2d, 3d, 7th, 12th to 19th, 27th to 30th.

Tennessee.—1st, 2d, 3d, 5th, 6th, 7th, 12th to 17th, 19th, 25th, 27th, 28th, 29th.

Ohio valley.—1st to 5th, 7th, 12th to 21st, 25th to 30th.

Lower lakes.—1st to 5th, 7th, 8th, 11th to 20th, 25th, 27th to 30th.

Upper lakes.—1st to 4th, 6th to 30th.

Extreme northwest.—1st to 30th.

Upper Mississippi valley.—1st to 24th, 26th to 30th.

Missouri valley.—1st to 30th.

Northern slope.—1st, 3d to 29th.

Middle slope.—1st, 2d, 3d, 5th to 30th.

Southern plateau.—2d, 4th to 29th.

Middle plateau.—1st, 2d, 4th to 7th, 10th to 30th.

Northern plateau.—1st to 9th, 11th, 13th to 17th, 19th, 28th.

North Pacific.—2d, 3d, 4th, 7th, 8th, 23d, 24th, 25th, 28th, 29th, 30th.

Middle Pacific.—1st to 6th, 17th, 18th, 21st, 22d, 23d, 25th to 30th.

Frosts were also reported from the following stations:

Los Angeles, California, 24th.

Poway, California, 21st to 27th.

Archer, Florida, 3d.

Mayport, Florida, 2d, 3d, 4th, 16th, 29th, 30th.

Fort Elliott, Texas, 1st, 6th, 18th, 20th, 22d, 24th.

At Stateburg, South Carolina, tender vegetation was killed by the frost of the morning of the 2d.

ICE.

Under the heading "ice in rivers and harbors" in this REVIEW, the subject of ice-formation in the northern sections of the country is considered. In the southern states the following instances of ice-formation have been reported:

Alabama.—Montgomery, 16th.

Arizona.—Wickenburg, 20th to 26th; Fort Grant, 21st.

Arkansas.—Lead Hill, 1st, 2d, 12th to 17th, 27th, 28th, 29th; Little Rock, 2d, 16th; Fort Smith, 14th.

California.—Princeton, 4th, 5th, 25th; Sacramento, 25th to 30th.

Florida.—Pensacola: thin ice formed in exposed places in this city on the 16th.

Georgia.—Atlanta, 2d.

Louisiana.—Liberty Hill, 16th.

North Carolina.—Weldon, 2d, 3d; New River Inlet, 2d, 3d, 16th; Sloop Point, 13th; Charlotte, 13th, 15th, 16th, 17th; Cape Lookout, 16th, Smithville, 17th; Brevard, 17th.

South Carolina.—Stateburg, 2d.

Tennessee.—Austin, 1st; Nashville, 2d; Chattanooga, 2d, 3d, 13th, 15th, 16th, 17th; Memphis, 13th, 15th, 16th, 17th.

Texas.—Fort Elliott, 14th; Cleburne, 16th; Barnesville, 27th.

Virginia.—Johnsontown, 13th, 15th, 17th, 29th; Norfolk, 13th, 15th; Marion, 16th.

At Webster, Day county, Dakota, on the 16th, ice was reported to be seven and one-half inches in thickness.

PRECIPITATION.

The distribution of rainfall over the United States and Canada for the month of November, 1883, as determined from reports from more than six hundred stations, is exhibited on chart iv.

The monthly precipitation has been excessive in the Gulf states, Ohio valley, Tennessee, upper lake region, northern slope and northern plateau. In these districts the excesses are not marked, being generally less than 1.00 except in the upper lake region and Ohio valley, where they were 1.00 and 1.05, respectively. In Tennessee the average precipitation was only 0.17 above the normal, and in the other districts of excess, the departures ranged from 0.49 in the eastern Gulf states to 0.90 in the western Gulf states, and 0.96 in the Rio Grande valley. At Salt Lake City, Utah, the monthly precipitation was 0.24 above the average of nine years. In the district bordering on the Atlantic and Pacific coasts, in the lower lake region, extreme northwest, upper Mississippi and Missouri valleys, middle and southern slopes, and in the southern plateau, the monthly precipitation has been below the normal. The deficiencies were large on the Atlantic and Pacific coasts, but in the other districts named they ranged from 0.14 in the upper Mississippi valley to 0.57 in the southern plateau. On the Pacific coast the deficiencies increase from 1.03 in southern California to 1.48 in Oregon and Washington Territory. On the Atlantic coast the largest deficiencies are 2.25 in middle Atlantic states and 2.68 in Florida. On the summit of Mount Washington, New Hampshire, the monthly precipitation was 3.03